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# NURSING CARE IN SUPPLEMENTAL NUTRITION

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**Increasing evidence to support  
the use of (ONS)oral nutritional  
supplements  
in clinical practice,  
particularly in acutely ill and older  
patients.**

**A review of reviews: A new look at the evidence for oral  
nutritional supplements in clinical practice(13 reviews)**

**Rebecca J. Strattona,b, , Marinos Eliaai**

**Clinical Nutrition Supplements (2007) 2, 5–23**

***Two incidents of severe hepatic injury  
following  
intake of Herbalife products contaminated  
with  
Bacillus subtilis emphasize its potential  
hepatotoxicity.***

**Severe hepatotoxicity following ingestion of Herbalife  
nutritional supplements contaminated with Bacillus subtilisq**

**Felix Stickel<sup>1,\*</sup>, Sara Droz<sup>2</sup>, Eleonora Patsenker<sup>1</sup>, Katja Bögli-Stuber<sup>2</sup>,  
Beat Aebi<sup>3</sup>, Stephen L. Leib<sup>2</sup>**

**Journal of Hepatology 50 (2009) 111–117**

# Nurses' Role:

- *Client nutritional assessment*
- *Teaching healthy nutrition & diet*
- *Patient monitoring*

# ***Nutritional Status Assessment***

## **❖ *Medical History***

- \* *Current & past medical history***
- \* *GI disorders*** (*lactose intolerance, pancreatic disorders, liver disorders, inflammatory bowel disorders*)
- \* *Altered metabolism*** (*fever, sepsis, cancer, burns, trauma, major surgeries,...*)

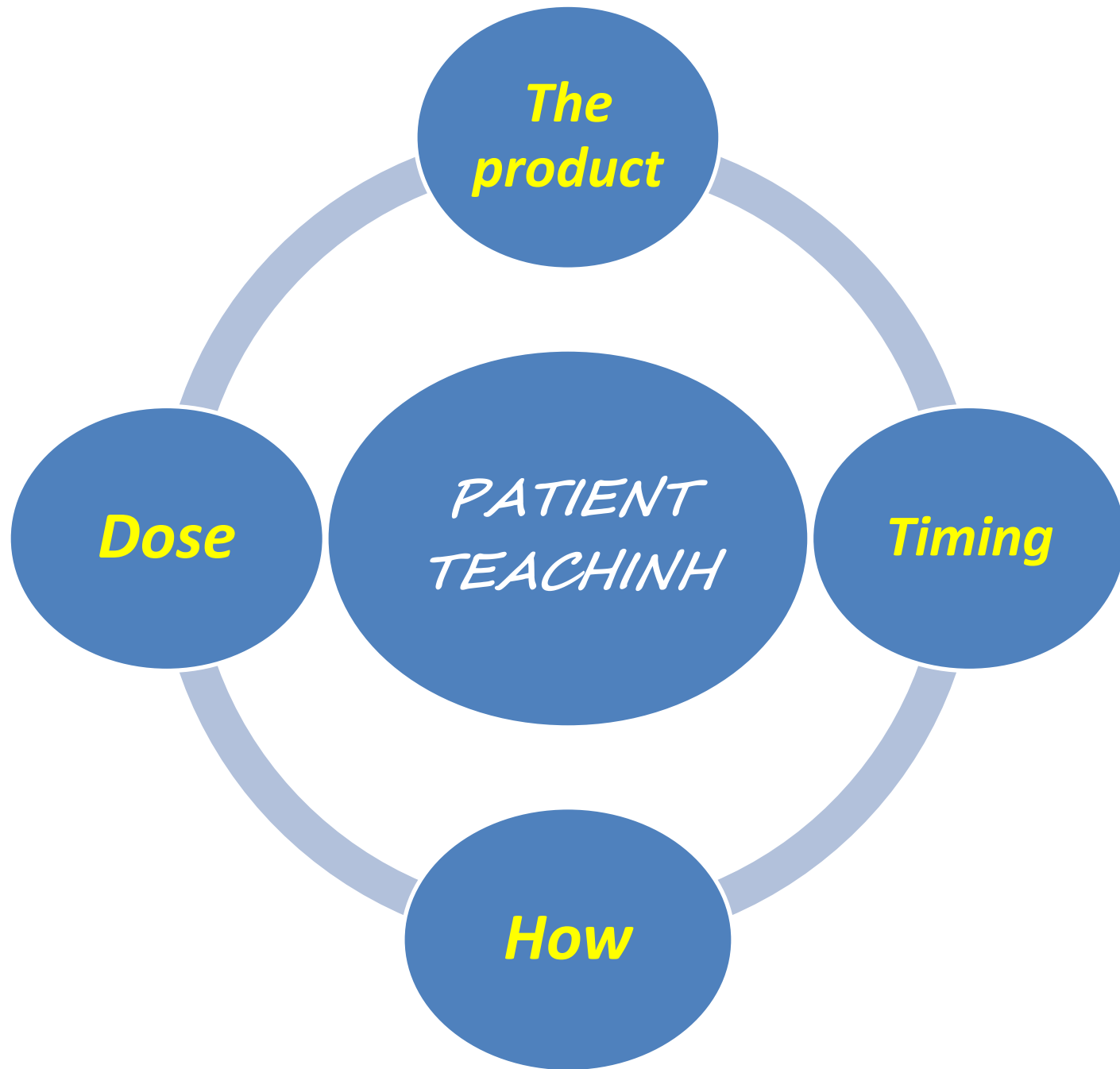
## **❖ *Intake information (24-hr food recall/food frequency record)***

## **❖ *Psychosocial Factors***

## **❖ *Physical examination***

*(skin, hair, eyes, Ht/Wt[IBW], BMI, anthropometric measurement)*

## **❖ *Laboratory data (Alb/PreAlb, transferrin, Hb&Hct,...)***



# Dietary Supplement

☐ *Oral Supplemental Feeding*

☐ *Total Enteral Feeding*

☐ *Total Parenteral Feeding*





# Oral Nutritional Supplement (ONS)

## ✓ *Vitamins (Water-soluble/Fat-soluble)*

- \* major functions*

- \* Side effects*

## ✓ *Minerals*

- \* major functions*

- \* Side effects*

# ***Vitamins Deficiencies & Toxicity Signs***

<i><b>Vitamins</b></i>	<i><b>S &amp; S of Deficiency</b></i>	<i><b>S &amp; S of Toxicity</b></i>
<i><b>B1</b></i>	<i><b>Fatigue, muscle weakness, confusion, edema, ...</b></i>	<i><b>None</b></i>
<i><b>B2</b></i>	<i><b>Dermatitis, glossitis, photophobia</b></i>	<i><b>None</b></i>
<i><b>B3(Niacin)</b></i>	<i><b>Dermatitis, diarrhea, dementia</b></i>	<i><b>Flushing, gastric ulcers, low BP, N&amp;V, diarrhea,</b></i>
<i><b>B6</b></i>	<i><b>Dermatitis, anemia, glossitis, seizure,</b></i>	<i><b>Irritability, headache, fatigue, depression</b></i>

# ***Vitamins Deficiencies & Toxicity Signs***

<i><b>Vitamins</b></i>	<i><b>S&amp;S of Deficiency</b></i>	<i><b>S&amp;S of Toxicity</b></i>
<i><b>B12</b></i>	<i><b>Indigestion,diarrhea, constipation, Wt loss, Anemia,fatige,poor memory</b></i>	<i><b>None</b></i>
<i><b>C</b></i>		<i><b>Diarrhea,hot flashes,headache,fatigue, nausea,insomnia</b></i>
<i><b>Biotin</b></i>	<i><b>Anorexia,fatigue,dry skin, depression</b></i>	<i><b>None</b></i>
<i><b>Folate</b></i>	<i><b>Diarrhea,macrocytic anemia, confusion, depression, fatigue</b></i>	<i><b>Masks Vit B12 deficiency</b></i>

# ***Vitamins Deficiencies & Toxicity Signs***

Vitamin	S&S of deficiency	S&S of Toxicity
Pantothenic acid	General failure of all body system	None
A	Night blindness, bone growth cessation, dry skin, diarrhea, decreased saliva	Headache, vomiting, hair loss, double vision, liver damage,
D	Retarded bone growth, bone malformations, osteomalacia, low serum Ca, muscle twitching	Kidney stones, kidney damage, muscle & bone weakness, headache, excessive bleeding & thirst
E	RBC hemolysis, edema, skin lesions	None
K	Hemorrhage	None

# ***Minerals Deficiency & Toxicity***

<i><b>Minerals</b></i>	<i><b>S &amp; S of Deficiency</b></i>	<i><b>S &amp; S of Toxicity</b></i>
<i><b>Ca</b></i>	<i><b>Numbness, brittle finger nail, muscle cramps, osteoporosis, insomnia</b></i>	<i><b>Renal calculi, impaired absorption of Fe</b></i>
<i><b>Cl</b></i>	<i><b>Acid-base imbalance</b></i>	<i><b>None</b></i>
<i><b>Mg</b></i>	<i><b>Confusion, disorientation, nervousness, irritability, tremor, neuromuscular dysfunction</b></i>	<i><b>Cardiac dysrhythmias, hypotension, respiratory failure</b></i>
<i><b>Ph</b></i>	<i><b>Fatigue, appetite loss, muscle weakness, irregular breathing</b></i>	<i><b>None</b></i>

# *Minerals Deficiency & Toxicity*

Minerals	S&S of deficiency	S&S of Toxicity
K	Muscular weakness, paralysis, anorexia, weak reflexes, slow heart beat	Cardiac disturbances
Na	Apetite loss, intestinal gas, vomiting, muscular atrophy, Wt loss	Edema, high BP
Sulfur	None	None

# *Minerals Deficiency & Toxicity*

Minerals	S&S of Deficiency	S&S of Toxicity
Fe	Brittle nails,constipation, anemia,tongue sores, pallor,weakness, fatigue	Abdominal cramps & pain, N&V, hemosiderosis
Zn	Fatigue,poor appetite, slow growth, skin disorders, smell & taste loss	Anemia, fever, impaired Ca absorption, muscle pain,dizziness
Iodine	Cold hands&feet, dry hair,irritability,simple goiter	Enlarged Thyroid gland
Selenium	None	N&V, abdominal pain,nerves damage, fatigue
Fluoride	Dental damage	Pitting of permanent teeth, increased bone density &calcification

# ***Kinds of Nutritional Supplement:***

- **Clear Liquid S.**
- **Milk-Based S.**
- **Modular S.** (More nutrient intake without increasing volume)  
CHO module Polycose, PRO module Propac, fat module Microlipid
- **Elemental S.** (Digested nutrients for Pt with impaired digestion&absorption)
- **Disease-Specific S.** ( Decreased CHO content for respiratory diseases, Increased amino acids for liver diseases, decreased PRO content for kidney diseases, high fiber for constipation )



# ***ENTERAL NUTRITION***

## ***Feeding Tubes***

- \* Naso/Orogastric Tubes***
- \* Naso/Orodeudenal or jejunal Tube***
- \* Gastrostomy***
- \* PEG:Percutaneuos Endoscopic Gastrostomy***
- \* PEJ:Percutaneous Endoscopic Jejunostomy***



**INTERMITTENT**

**CONTINUOUS**

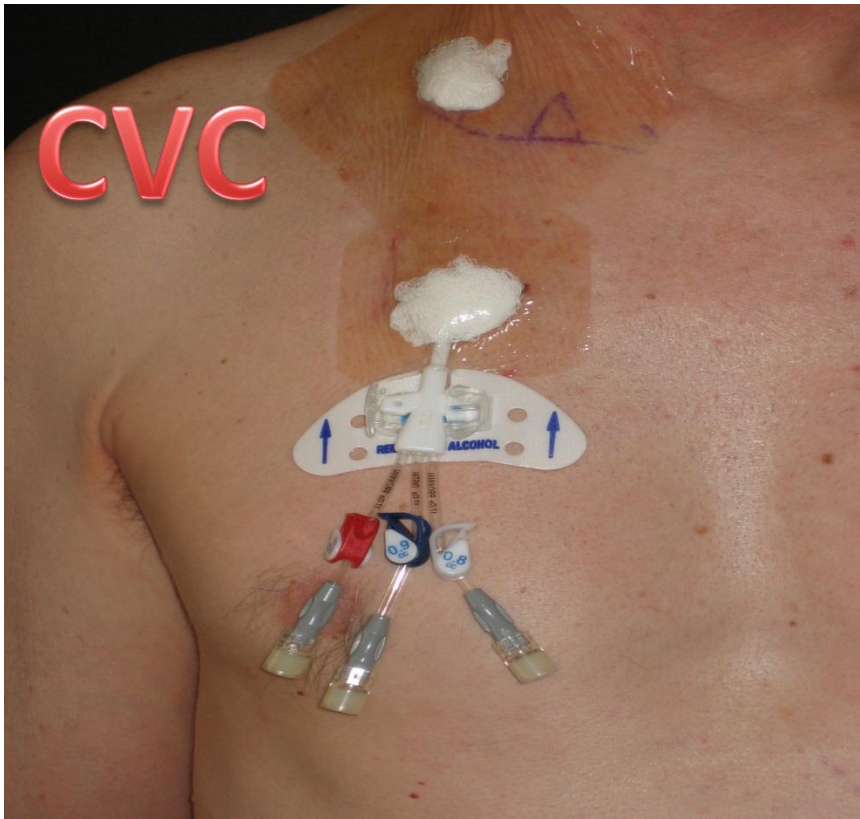
# ***Dietary Supplement Complications***

## ***ENTERAL NUTRITION***

- \* GI problems like N&V, Diarrhea,  
Abdominal Distention)***
- \* Aspiration Pneumonia***
- \* Infections***
- \* Metabolic problems like fluid imbalance***

# PARENTERAL NUTRITION

- *Central Vascular Access*
- *Peripheral Vascular Access*



# Dietary Supplement Complications

## *PARENTERAL NUTRITION*

- \* Mechanical Complications(pneumothorax, infection,air emboli, flebitis,leaking)
- \* Metabolic Complications  
(Hyper/hypoglysemia,Hyper/hypokalemia, Hyperosmolarity diuresis,...)
- \* Refeeding Syndrome





*Let's enjoy  
spectacular fall  
In Qazvin*